

AMENDMENTS TO THE SPECIFICATION

Please amend the section beginning on page 244, line 7 and ending on page 245, line 8 as follows:

B1 In the case of K+betaM4, ion channel sequences were used as probes to search the human genomic sequence database. The search program used was gapped BLAST (Altschul et al., 1997). Ion channel specific Hidden Markov Models (HMMs) built in-house or obtained from the public PFAM databases were also used as probes (Bateman et al., 2000). The search program used for HMMs was the Genewise/Wise2 package (<http://www.sanger.ac.uk/Software/Wise2/index.shtml>). The top genomic exon hits from the results were searched back against the non-redundant protein and patent sequence databases. From this analysis BAC U73643 was determined to possess a novel ion channel exon based on its homology to the putative human beta subunit K+Hnov28 (SEQ ID NO:3). A predicted exon sequence from BAC U73643, including 200bp of intron sequence on either side is provided as SEQ ID NO:8. The full length cDNA described herein as K+betaM4 (SEQ ID NO:1, Figures 1A-B), was isolated using probes designed from the BAC U73643 exon (SEQ ID NO:8). Based on this analysis, a partial sequence of the novel human ion channel related gene, K+betaM4, was identified directly from the genomic sequence. The full-length clone of this novel ion channel gene was experimentally obtained by using the sequence from genomic data.

In the case of K+betaM5, ion channel sequences were used as probes to search the human genomic sequence database. The search program used was gapped BLAST (Altschul et al., 1997). Ion channel specific Hidden Markov Models (HMMs) built in-house or obtained from the public PFAM databases were also used as probes (Bateman et al., 2000). The search program used for HMMs was the Genewise/Wise2 package (<http://www.sanger.ac.uk/Software/Wise2/index.shtml>). The top genomic exon hits from the results were searched back against the non-redundant protein and patent sequence databases. From this analysis BAC AC006001 was determined to possess a novel ion channel exon based on its homology to the putative human beta subunit K+Hnov28 (SEQ ID NO:3). A predicted exon sequence from BAC AC006001, including 200bp of intron sequence on either side is provided as SEQ ID NO:29. Based on this analysis, a partial sequence of the novel human ion channel related gene, K+betaM5, was identified directly from the genomic sequence. The full-length clone of this novel ion channel gene was experimentally obtained by using the sequence

BI from genomic data. The full length cDNA described herein as K+betaM5 (SEQ ID NO:23, Figures 6A-C), was isolated using probes designed from the BAC AC006001 exon (SEQ ID NO:29).